Me means metal,

R means alkyl residue, and

Y means alcoholate residue

as well as metalorganic compounds of the general formula

$$Z_nMe$$

in which

Me means metal,

Z means acteylacetonate residue, and

n = 2 or 3,

or any unspecified mixtures of such metalorganic catalysts.

IN THE CLAIMS

Please cancel claims 1-24 without prejudice or disclaimer of the subject matter recited therein.

Please add claims 25-65 prior to cancellation of claims 1-24, as follows:

---25. A hardenable mass containing uretdione groups containing:

(A) linear or branched bonding agent component having at least one of terminal and side chain hydroxyl groups with a hydroxyl number of 25 to 400, and an average molecular weight of 400 to 20,000, which is present in a fluid or viscous form above the reaction or processing temperature;

(B) polyaddition compound present in a fluid or viscous form above the reaction or processing temperature and containing uretdione groups; and

(C) at least one active or reactively activatable Lewis acid catalyst;

said bonding agent component (A):

(A1) being free of carboxyl groups, or

(A2) having a concentration of carboxyl groups less than a concentration of active catalyst (C), or

(A3) having a concentration of carboxyl groups higher than a concentration of active catalyst (C), and an amount of reactive agent is added to block an amount of carboxyl groups in order to realize a concentration of active catalyst (C); and wherein:

(C1) in the case of (A1) and (A2), the use of Lewis acid carboxylates as catalysts is excluded, and

(C2) in the case of (A3), Lewis acid carboxylates also being included that are or may be reactivated by means of alkylating agents to carbonic acid esters while forming Lewis acid alcoholates.

26. The hardenable mass according to claim 25, further comprising at least one other catalyst utilizable in urethane chemistry.

27. The hardenable mass according to claim 25, further comprising auxiliary materials and additives.

28. The hardenable mass according to claim 25, wherein said polyaddition compound (B) comprises free isocyanate groups based on at least one of aliphatic and cycloaliphatic diisocyanates.

29. The hardenable mass according to claim 25, wherein the bonding agent component (A) comprises a polymer compound having hydroxyl groups.

30. The hardenable mass according to claim 29, wherein the polymer component comprises at least one of polyacrylates, polyethers, polyesters, and oligo- and polyepoxides.

31. The hardenable mass according to claim 25, wherein the polyaddition compound (B) comprises a polyaddition compound based on at least one of isophorone diisocyanate and hexamethylene diisocyanate having uretdione groups.

32. The hardenable mass according claim 31, wherein the polyaddition compound (B) further comprises free isocyanate groups.

33. The hardenable mass according to claim 25, wherein said reactive agent comprises at least one of an epoxy compound and an oxazoline compound.

34. The hardenable mass according to claim 25, wherein said at least one active or reactively activatable Lewis acid catalyst (C) comprises at least one metalorganic catalyst of the general formula:

$$R_2MeX_2$$

in which

Me is metal,

R is alkyl residue, and

X is carboxylate residue.

35. The hardenable mass according to claim 25, wherein said at least one active or reactively activatable Lewis acid catalyst (C) comprises at least one metalorganic catalyst of the general formula:

$$R_2MeY_2$$

in which

Me is metal,

R is alkyl residue, and

Y is alcoholate residue.

36. The hardenable mass according to claim 25, wherein said at least one active or reactively activatable Lewis acid catalyst (C) comprises at least one metalorganic catalyst of the general formula:

$$Z_nMe$$

in which

Me is metal,

Z is acteylacetonate residue, and

n is 2 or 3.

37. The hardenable mass according to claim 25, in which said at least one active or reactively activatable Lewis acid catalyst (C) comprises at least one derivative of at least one metalorganic catalyst of:

(a) the general formula

R_2MeX_2

in which

Me means metal,

R means alkyl residue, and

X means carboxylate residue; and

(b) the general formula

R_2MeY_2

in which

Me means metal,

R means alkyl residue, and

Y means alcoholate residue; and

(c) the general formula

Z_nMe

in which

Me means metal,

Z means acteylacetonate residue, and

n means 2 or 3; and derivatives thereof.

38. The hardenable mass according to claim 25, in which said at least one active or reactively activatable Lewis acid catalyst (C) comprises mixtures of at least one metalorganic catalyst of:

(a) the general formula

R_2MeX_2

in which

Me means metal,

R means alkyl residue, and

X means carboxylate residue; and

(b) the general formula

R_2MeY_2

in which

Me means metal,

R means alkyl residue, and

Y means alcoholate residue; and

(c) the general formula

Z_nMe

in which

Me means metal,

Z means acteylacetonate residue, and

n means 2 or 3; and derivatives thereof; and

at least one derivative of the at least one metalorganic compound.

39. The hardenable mass according to claim 25, wherein said other catalyst utilizable in urethane chemistry comprises nucleophillic substances.

40. The hardenable mass according to claim 25, wherein said bonding agent component (A) has a hydroxyl number of 25 to 200 and an average molecular weight of 1,000 to 10,000.

41. Process for production of a hardenable mass containing uretdione groups, comprising:

(a) homogenizing components in at least one of a solution and a melt, at the longest until an increase in molar mass can be verified, said components comprising:

(A) linear or branched bonding agent component having at least one of terminal and side chain hydroxyl groups with a hydroxyl number of 25 to 400, and an average molecular weight of 400 to 20,000, which is present in a fluid or viscous form above the reaction or processing temperature;

(B) polyaddition compound present in a fluid or viscous form above the reaction or processing temperature and containing uretdione groups that are not cross-linked; and

(C) at least one active or reactively activatable Lewis acid catalyst;

said bonding agent component (A):

(A1) being free of carboxyl groups, or

(A2) having a concentration of carboxyl groups less than a concentration of active catalyst (C), or

(A3) having a concentration of carboxyl groups higher than a concentraton of active catalyst (C), and an amount of reactive agent is added to block an amount of carboxyl groups in order to realize a concentration of active catalyst (C); and wherein:

(C1) in the case of (A1) and (A2), the use of Lewis acid carboxylates as catalysts is excluded, and

(C2) in the case of (A3), Lewis acid carboxylates also being included that are or may be reactivated by means of alkylating agents to carbonic acid esters while forming Lewis acid alcoholates; and

(b) quickly cooling the at least one of a solution and a melt to below a reaction temperature of a resulting hardenable mass; and

(c) processing of the resulting hardenable mass to complete cross-linking.

42. The process according to claim 41, wherein the resulting hardenable mass is stored prior to processing of the resulting hardenable mass to complete cross-linking.

43. The process according to claim 41, wherein the processing of the resulting hardenable mass to complete cross-linking includes increasing temperature of the resulting hardenable mass by at least one of linearly and non-linearly, or maintaining a constant reaction temperature sufficiently long until essentially no more reaction heat can be verified using DSC measurements.

44. The process according to claim 41, wherein the homogenizing of the resulting hardenable mass is performed in a melt in a laboratory kneader or at least one of a co-kneader and an extruder.

45. The process according to claim 41, wherein the homogenizing of the resulting hardenable mass is performed at temperatures less than or equal to 110°C.

46. The process according to claim 45, wherein the homogenizing of the resulting hardenable mass is performed at temperatures between 50 and 100°C.

47. The process according to claim 41, wherein the homogenizing of the resulting mass is performed for up to 30 min.

48. The process according to claim 41, wherein the cooling below a reaction temperature after the homogenization is performed by insertion of the resulting hardenable mass into liquid nitrogen or by applying the resulting hardenable mass to a cooling belt.

49. The process according to claim 47, wherein resulting hardenable mass comprises a melt.

50. The process according to claim 41, wherein at least one of the components is used in a fluid form.

51. The process according to claim 43, wherein the temperature is increased at least one of linearly and non-linearly in a range of preferably 20 K above a homogenization temperature up to a maximum of 200°C.

52. The process according to claim 51, wherein the temperature is increased at least one of linearly and non-linearly in a range of preferably 20 K above a homogenization temperature up to a maximum of 180°C.

53. The process according to claim 41, wherein in which catalyst other than catalyst (C) is added at reduced temperatures after the homogenizing of the components (A), (B) and (C).

54. The process according to claim 41, wherein the homogenizing the resulting hardenable mass is in a melt.

55. The process according to claim 41, wherein the homogenizing of the resulting hardenable mass is performed in at least one stage in a melt, with the catalyst being added at lower temperatures in a single-stage homogenization and, in a multi-stage homogenization, is not added until a second stage at lower temperatures.

56. The process according to claim 43, wherein the temperature is increased in stages and the temperature is kept constant after every increasing step for a time period of 1 to 60 minutes.

57. The process according to claim 43, wherein the temperature is increased in stages and the temperature is kept constant after every increasing step for a time period of 5 to 30 minutes.

58. The process according to claim 43, wherein the temperature is increased in two stages, with the second increase in temperature being performed immediately thereafter or temporally later.

59. A heat-resistant substrate coated with the hardenable mass according to claim 25.

60. A thermolabile substrate coated with the hardenable mass according to claim 25.

61. A masking component comprising the hardenable mass according to claim 25.

62. A treatable, hardenable coating form comprising the hardenable mass according to claim 25.

63. A thermally hardenable molding compound comprising the hardenable mass according to claim 25.